

◆ All EFANE ROICCs conduct refresher training for their personnel in the items that require contractors to develop critical lift plans and the elements of a critical lift plan

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Pictures of sheared connecting bolts.

Naval Facilities Engineering Command

Abstract of an Accident

01-02

Accident Type: Crane

Injury: Property Damage to Contractors Crane

Type of Work: Wall Erection

Equipment: 65 Ton Hydraulic Crane, Building Panels

DESCRIPTION OF THE ACCIDENT:

At approximately 1200 hrs on 14 August, 2002, a 65-ton hydraulic crane was being used to hoist a precast concrete wall panel from the transport trailer, using the Main Hoist rigged with a four-legged sling. The Hoisting Plan called for the panel to be lifted horizontally by both the crane's Main Hoist and Auxiliary Hoist (Whip) to a sufficient elevation to clear the ground, and then to simultaneously raise the top of the panel with the Main while lowering the bottom of the panel with the Whip to position the panel vertically for installation into the structure. The bolts holding the Upper Boom Point Sheave (Whip Guide Sheave) sheared, immobilizing the Whip Line. The operator attempted to relieve the strain on the Whip, but the cable movement caused the sheave assembly to fall down the cable onto the hook, and made further use of the Whip inadvisable. The load was maneuvered to a position where it could be safely lowered to the ground. A 100 ton-rated Manitowoc 222 lattice-boom crane was used to reenact the panel lift. Prior to re-commencing panel installation operations the 100-ton crane was used to reenact the panel lift. It was discovered that contrary to initial assumptions, during the "tripping" maneuver to get the panel vertical, the great majority of the weight would actually have been taken on the Auxiliary Hoist and not the Main Hoist as originally expected. thus it would appear that the most probable cause of the incident was abrupt overloading of the Auxiliary Hoist. Furthermore, as the original Plan anticipated more strain on the Main Hoist, the 65-ton Crane Operator had set his Load Sensor to monitor this *line and* not the Whip, and thus was not forewarned. Additionally,

DIRECT CAUSE:

- ◆ Undersized Crane for lift due to inadequate planning.
- ◆ Overloading of the Auxiliary Hoist.
- ◆ Set Load Sensor to monitor main hoist, not the Whip

INDIRECT CAUSE:

- ◆ Critical lift plan not made due to inadequate planning.
- ◆ Lift plan was flawed with incorrect assumptions when tripping panel during lift.
- ◆ AHA was incomplete.

LESSONS LEARNED:

- ◆ Additional training is required to familiarize ROICC personnel with crane requirements and critical lifts P-307, Spec 01525 and COE 385.1.1.
- ◆ Review all active EFA NE contracts on which cranes are to be used to insure current requirements of P-307 are included.
- ◆ Schedule Crane Training for all ROICC Offices, second quarter 2003.



Approximate position of crane at time of accident:



Dowels bent when load contacted ground.



boom shows missing whip hoist "rooster head".



Damaged "rooster head".